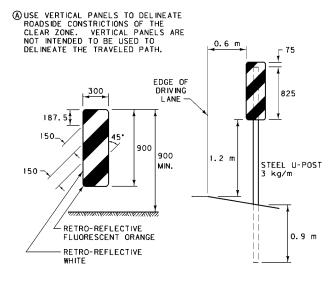


- ① RAIL STRIPES ARE 150 mm IN WIDTH FOR BARRICADES 0.9 m OR GREATER IN LENGTH. FOR BARRICADES LESS THAN 0.9 m IN LENGTH, 100 mm STRIPES MAY BE USED.
- ② THE PREDOMINANT COLOR FOR OTHER BARRICADE COMPONENTS IS WHITE, BUT UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED.
- ③ WHERE B(III) BARRICADES ARE TO FACE TRAFFIC FROM TWO DIRECTIONS, STRIPING ON BOTH THE FRONT AND REAR SIDES IS REQUIRED.
- (4) USE MATERIALS FOR BARRICADE FRAMEWORK AND ASSEMBLY, INCLUDING ANY SIGNS AND MEANS OF ATTACHMENT, THAT MEET THE REQUIREMENTS FOR NCHRP 350 FOR WORK ZONE DEVICES.
- (5) USE SANDBAGS OF SUFFICIENT WEIGHT TO HOLD THE BARRICADES IN PLACE. WATERPROOF SANDBAGS DURING PERIODS OF FREEZING WEATHER

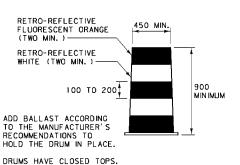
PORTABLE BARRICADES



PORTABLE

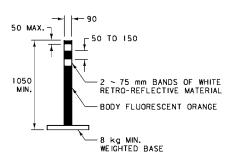
POST MOUNTED

VERTICAL PANEL (VP-IR SHOWN. REVERSE FOR VP-IL.)

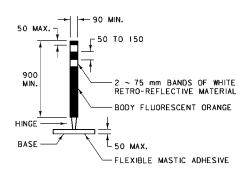


TIAVE CEOSED TOFS.

PLASTIC DRUM



FLEXIBLE GUIDE POST



(SELF RIGHTING AFTER IMPACT)

NOTES:

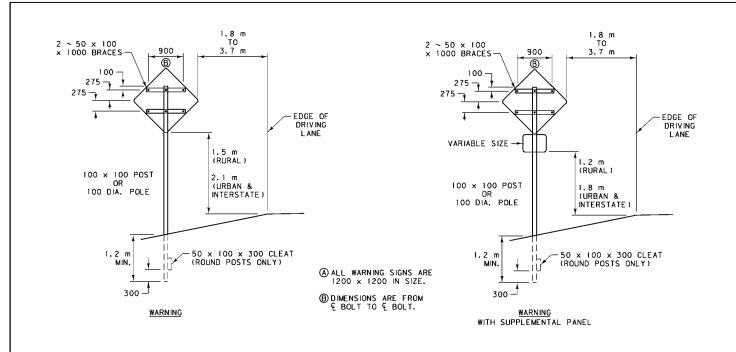
- (6) BARRICADES OR VERTICAL PANELS DESIGNATED "R" ARE PLACED TO THE RIGHT SIDE OF APPROACHING TRAFFIC. THOSE DESIGNATED "L" ARE PLACED TO THE LEFT SIDE.
- (7) SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART 6 FOR ADDITIONAL INFORMATION.
- (B) USE ASTM TYPE III REFLECTIVE SHEETING ON ALL BARRICADES AND CHANNELIZING DEVICES.

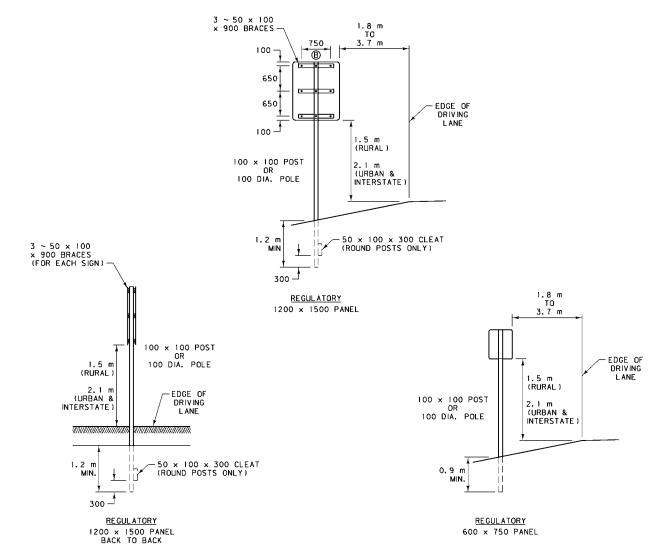
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC.
SECTION 618
618-00

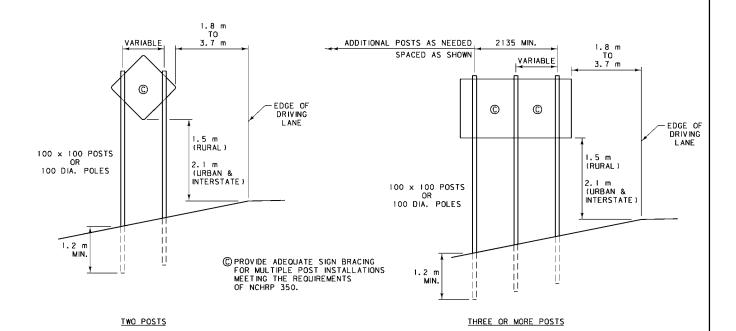
BARRICADES AND CHANNELIZING DEVICES



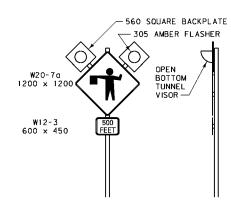




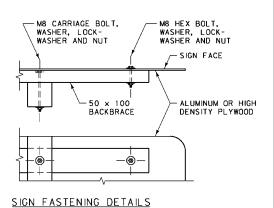
TYPICAL SIGN MOUNTINGS (FOR CONSTRUCTION SIGNING ONLY)



TYPICAL MULTIPLE POST INSTALLATIONS (FOR CONSTRUCTION SIGNING ONLY)



FLASHING FLAGGER AHEAD SIGN



NOTES:

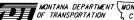
- ① FURNISH AND INSTALL POSTS OR POLES MEETING NCHRP 350 REQUIREMENTS.
- ② FURNISH POST OR POLE LENGTHS TO ACCOMMODATE THE FOUNDATION DEPTH, THE MOUNTING HEIGHT AND THE MOUNTINGS.
- 3 BACKFILL FOUNDATION HOLES IN 205 mm LIFTS, THOROUGHLY TAMPING EACH LIFT.
- (4) IN HIGH WIND AREAS INSTALL LARGER POSTS OR POLES COMPLYING WITH THE FOUNDATION AND BREAKAWAY REQUIREMENTS OF DTL. DWG. 619-20. THE MINIMUM POST SPACING FOR MULTIPLE POSTS LARGER THAN 100 mm IS 2135 mm.
- (5) VERTICAL ALIGNMENT OF SIGNS IS TO BE WITHIN 5° OF PLUMB (85 mm IN 1000 mm).
- (6) USE THE URBAN MOUNTING HEIGHTS IN BUSINESS, COMMERCIAL, AND RESIDENTIAL DISTRICTS WHERE PARKING AND/OR PEDESTRIAN MOVEMENT IS LIKELY TO OCCUR, OR WHERE THERE ARE OTHER OBSTRUCTIONS TO VIEW. URBAN MOUNTING HEIGHTS MAY ALSO BE USED IN RURAL AREAS FOR INCREASED VISIBILITY.

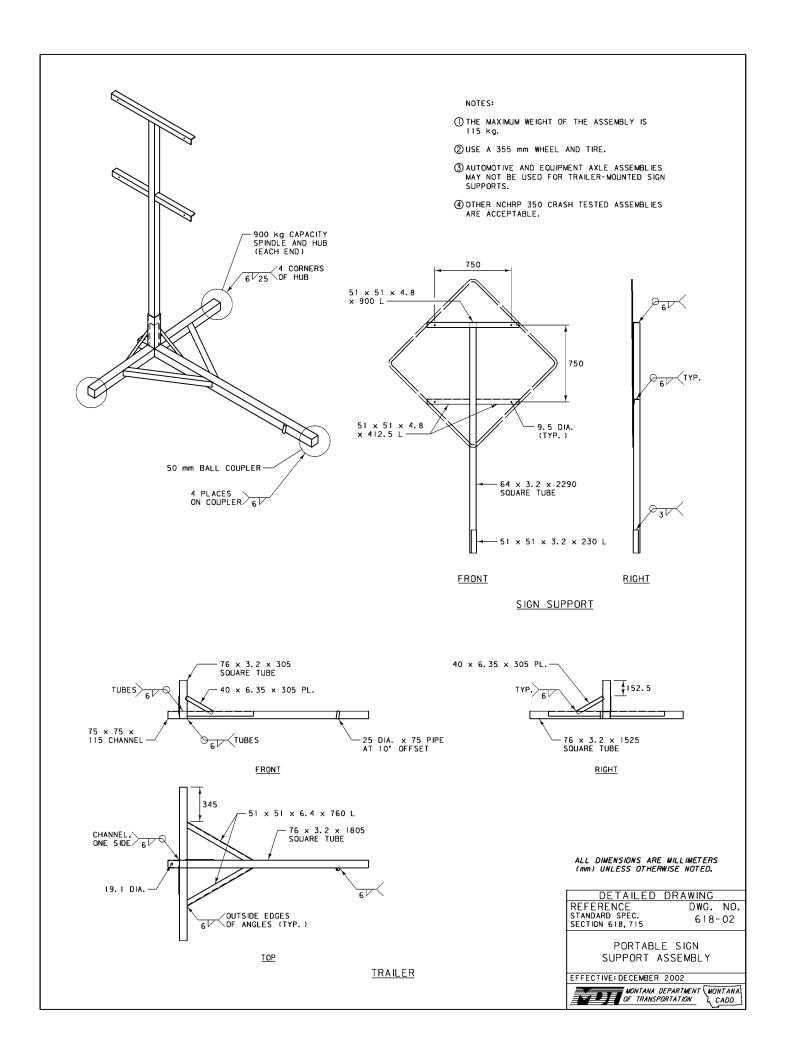
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

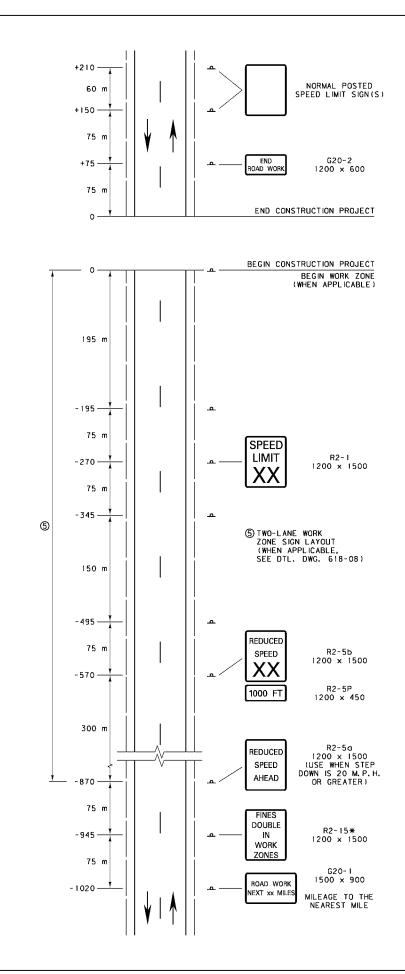
DETAILED DRAWING REFERENCE STANDARD SPEC. DWG. NO. 618-01 SECTION 618

> CONSTRUCTION SIGN DETAILS







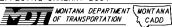


- ① THIS SIGN LAYOUT IS INTENDED TO BE A PERMANENT INSTALLATION FOR THE DURATION OF THE CONSTRUCTION PROJECT, AS APPROVED BY THE ENGINEER. COVER OR REMOVE ANY SIGNS WHEN NOT IN USE, INCLUDING SPEED LIMIT SIGNS NOT WARRANTED. REMOVE ANY SIGN SUPPORTS IF THEY WILL NOT BE NEEDED WITHIN 90 DAYS.
- 2 XX = SPEED DETERMINED BY THE ENGINEER.
- (3) INCLUDE REGULATORY SIGNING ONLY IF THE CONSTRUCTION PROJECT CONTAINS A WORK ZONE OR HAS ROADWAY CONDITIONS THAT WARRANT SPEED RESTRICTIONS. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- (4) THE WORK ZONE REFERS TO THE AREA WITHIN THE CONSTRUCTION PROJECT WHERE WORK IS ACTUALLY TAKING PLACE.
- (S) IN ADDITION TO THE SIGNS SHOWN, INCLUDE THE APPROPRIATE TWO-LANE WORK ZONE SIGNS (DTL. DWG. NO. 618-08) WHEN A WORK ZONE IS LOCATED AT THE BEGINNING OR END OF THE CONSTRUCTION PROJECT.
- 6 SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
- * DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

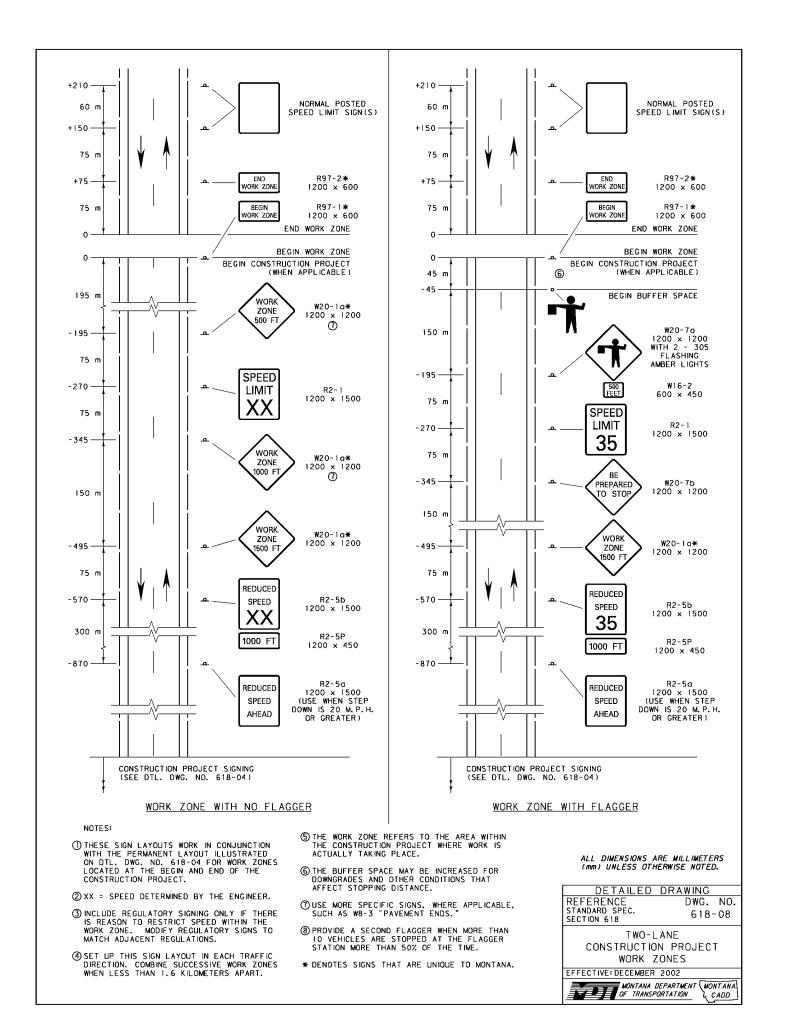
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

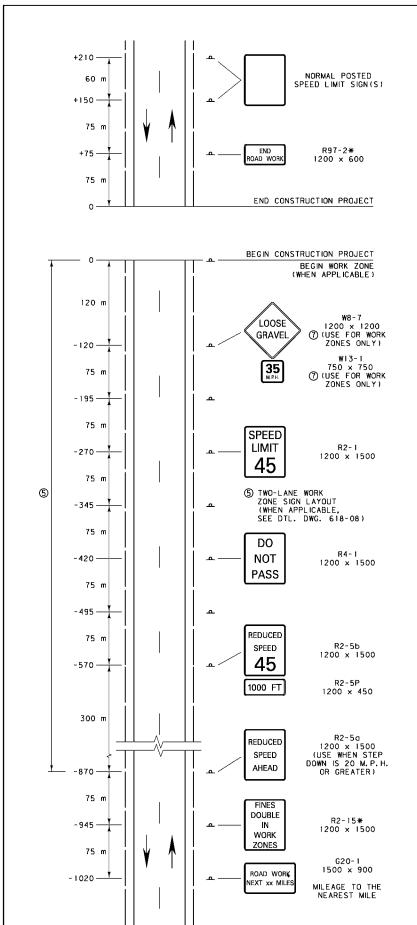
DETAILED DRAWING REFERENCE STANDARD SPEC. DWG. NO. 618-04 SECTION 618

> TWO-LANE CONSTRUCTION PROJECT









- (1) THIS SIGN LAYOUT WORKS IN CONJUNCTION WITH THE PERMANENT LAYOUT ILLUSTRATED ON DTL. DWG. NO. 618-04. COVER OR REMOVE SIGNS WHEN NOT IN USE, INCLUDING SPEED LIMIT SIGNS NOT WARRANTED.
- ② INCLUDE REGULATORY SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE CONSTRUCTION PROJECT. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ③ THE WORK ZONE REFERS TO THE AREA WITHIN THE CONSTRUCTION PROJECT WHERE WORK IS ACTUALLY TAKING PLACE.
- (4) FOR SEAL COAT WORK ZONE ACTIVITIES, USE THE FLAGGER APPLICATION OF THE WORK ZONE LAYOUT FROM DTL. DWG. NO. 618-08.
- (5) IN ADDITION TO THE SIGNS SHOWN, INCLUDE THE APPROPRIATE TWO-LANE WORK ZONE SIGNS WHEN A WORK ZONE IS LOCATED AT THE BEGINNING OR END OF THE CONSTRUCTION PROJECT.
- (6) SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
- (T) PLACE THE W8-7 AND W13-1 SIGNS AT EACH END OF EACH WORK ZONE AND AT 3.2 km INTERVALS WITHIN THE WORK ZONES FOR EACH DIRECTION OF TRAVEL.
- * DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC.
SCECTION 618

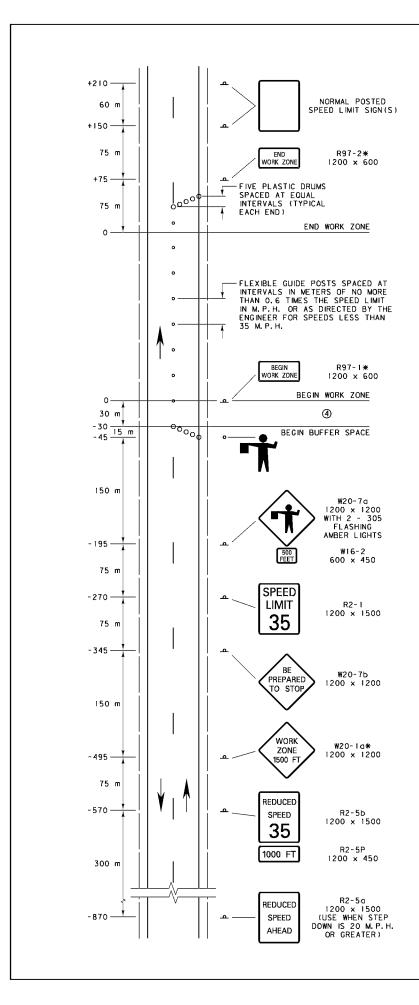
DRAWING

0 NO.
618-10

TWO-LANE
CONSTRUCTION PROJECT
SEAL COAT



This Frame left blank



NOTES:

- MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ② SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION.
- ③ THE WORK ZONE REFERS TO THE AREA WITHIN THE CONSTRUCTION PROJECT WHERE WORK IS ACTUALLY TAKING PLACE.
- 4 THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- (5) PROVIDE A SECOND FLAGGER WHEN MORE THAN 10 VEHICLES ARE STOPPED AT THE FLAGGER STATION MORE THAN 50% OF THE TIME.
- * DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

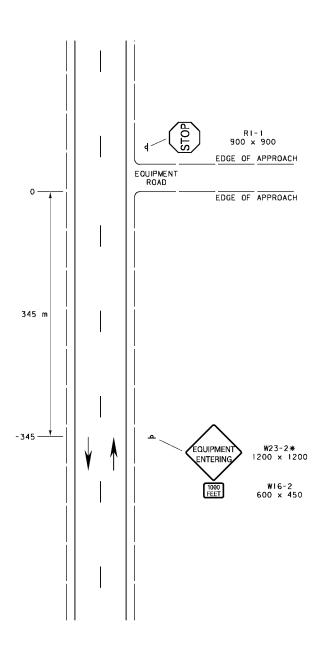
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC. 618-12

TWU-LANE
CONSTRUCTION PROJECT
LANE CLOSURE

EFFECTIVE: DECEMBER 2002





① USE THIS SIGN LAYOUT ON LOW VOLUME ROADS, WHEN APPROPRIATE. OTHERWISE REFER TO DTL. DWG. NO. 618-16 WHEN A REDUCTION IN SPEED OR A FLAGGER IS NEEDED.

- ② LOW VOLUME ROADS ARE DEFINED AS ROADS WITH LESS THAN 400 CURRENT AADT AND ARE OUTSIDE OF BUILT-UP AREAS OF TOWNS AND COMMUNITIES.
- 3 SET UP THIS SIGN LAYOUT IN EACH TRAFFIC DIRECTION, AS NEEDED.
- *DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

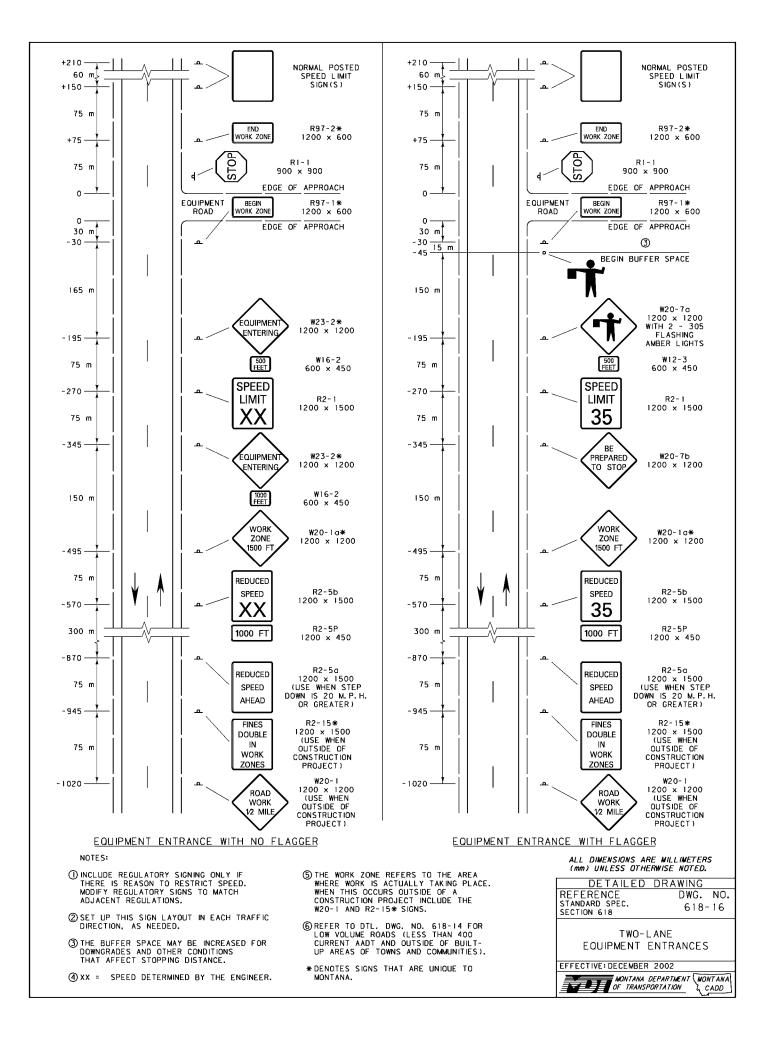
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

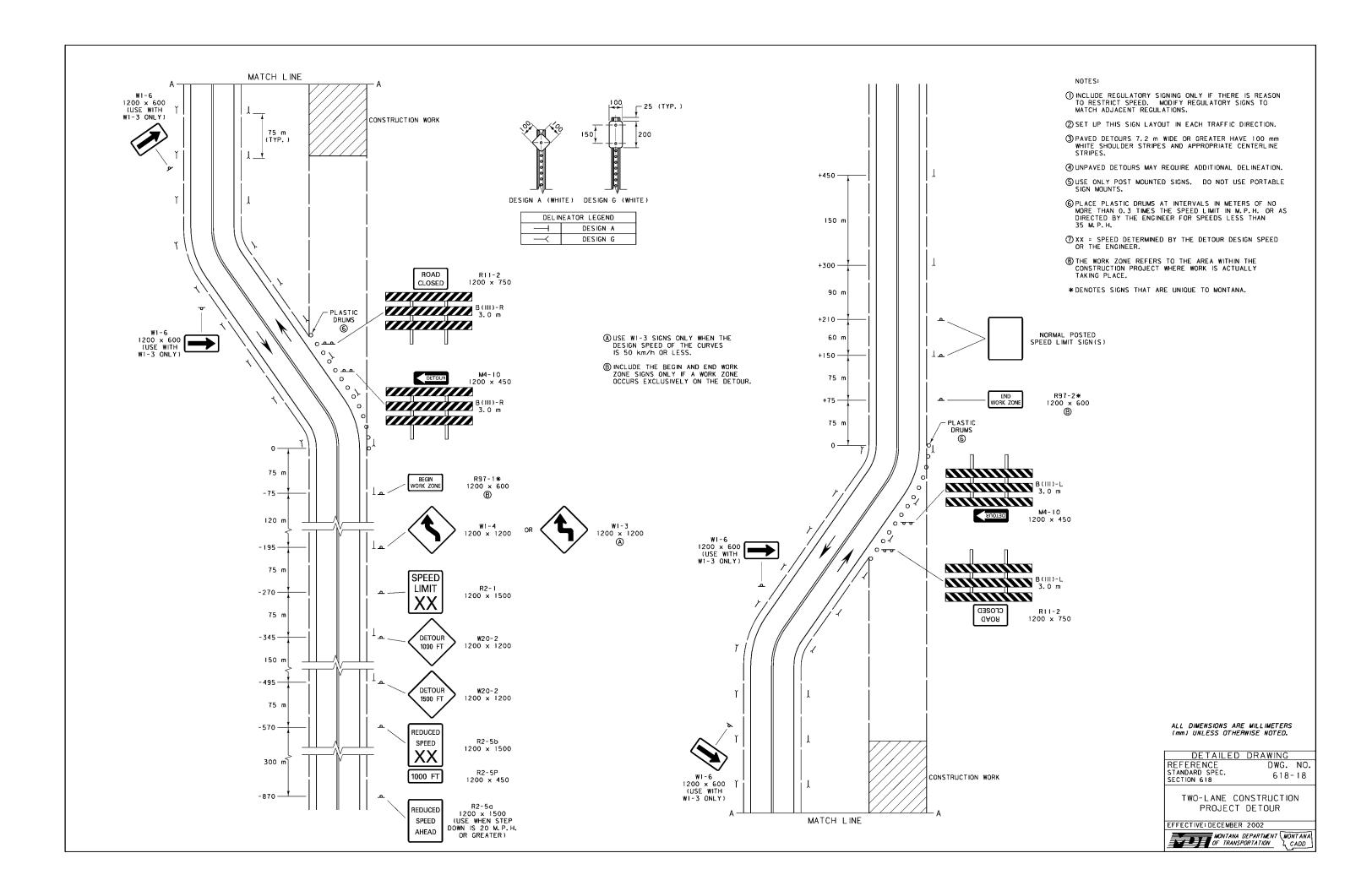
DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC.
SECTION 618 618-14

TWO-LANE EQUIPMENT ENTRANCES ON LOW VOLUME ROADS

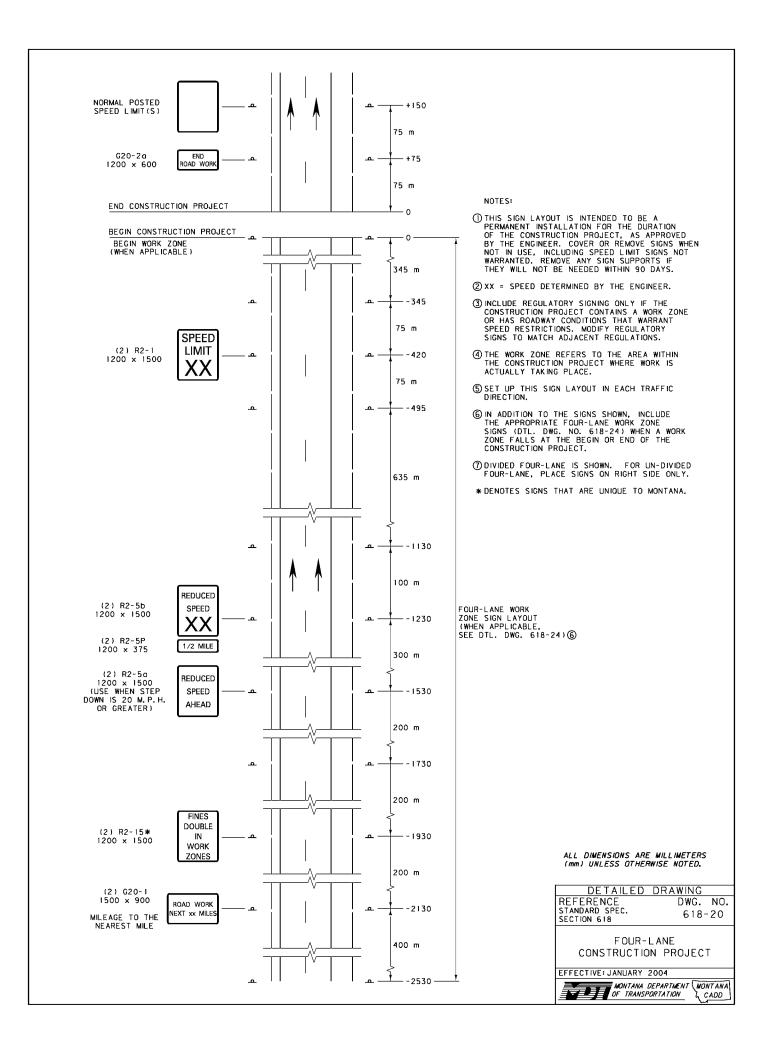
EFFECTIVE: DECEMBER 2002

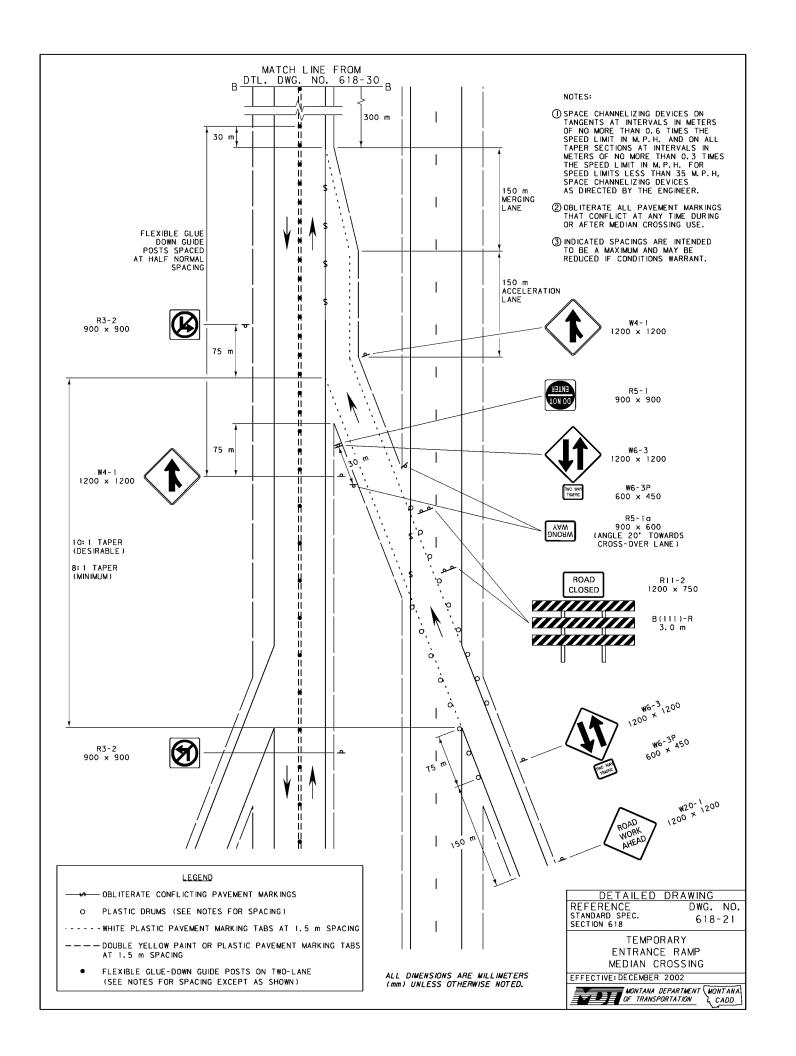


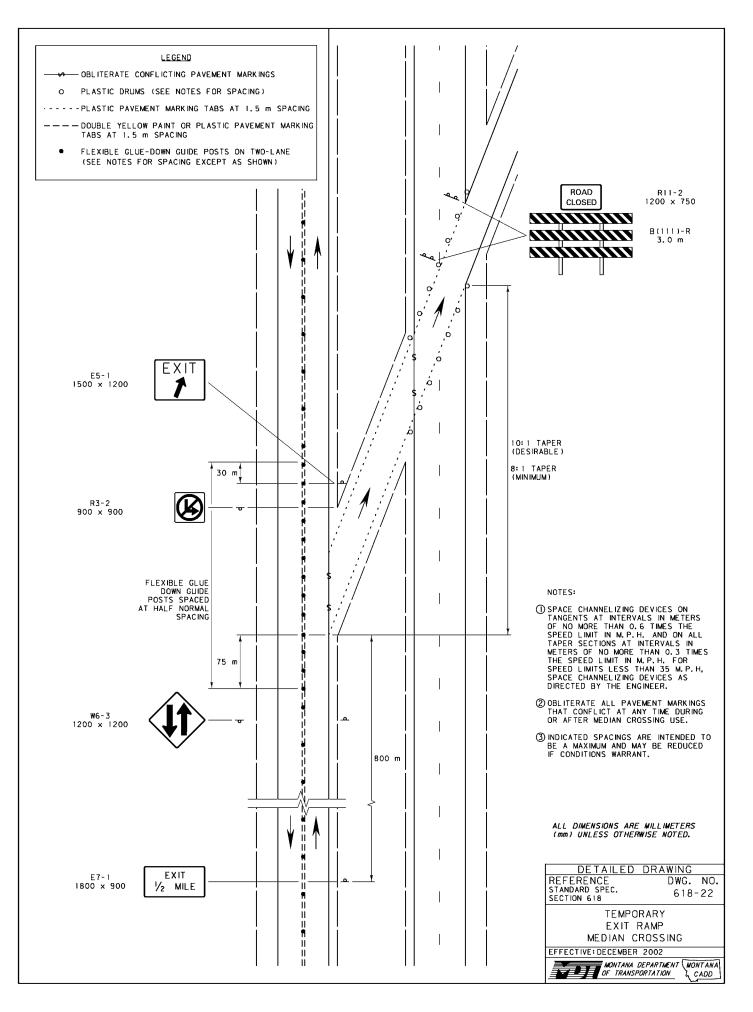


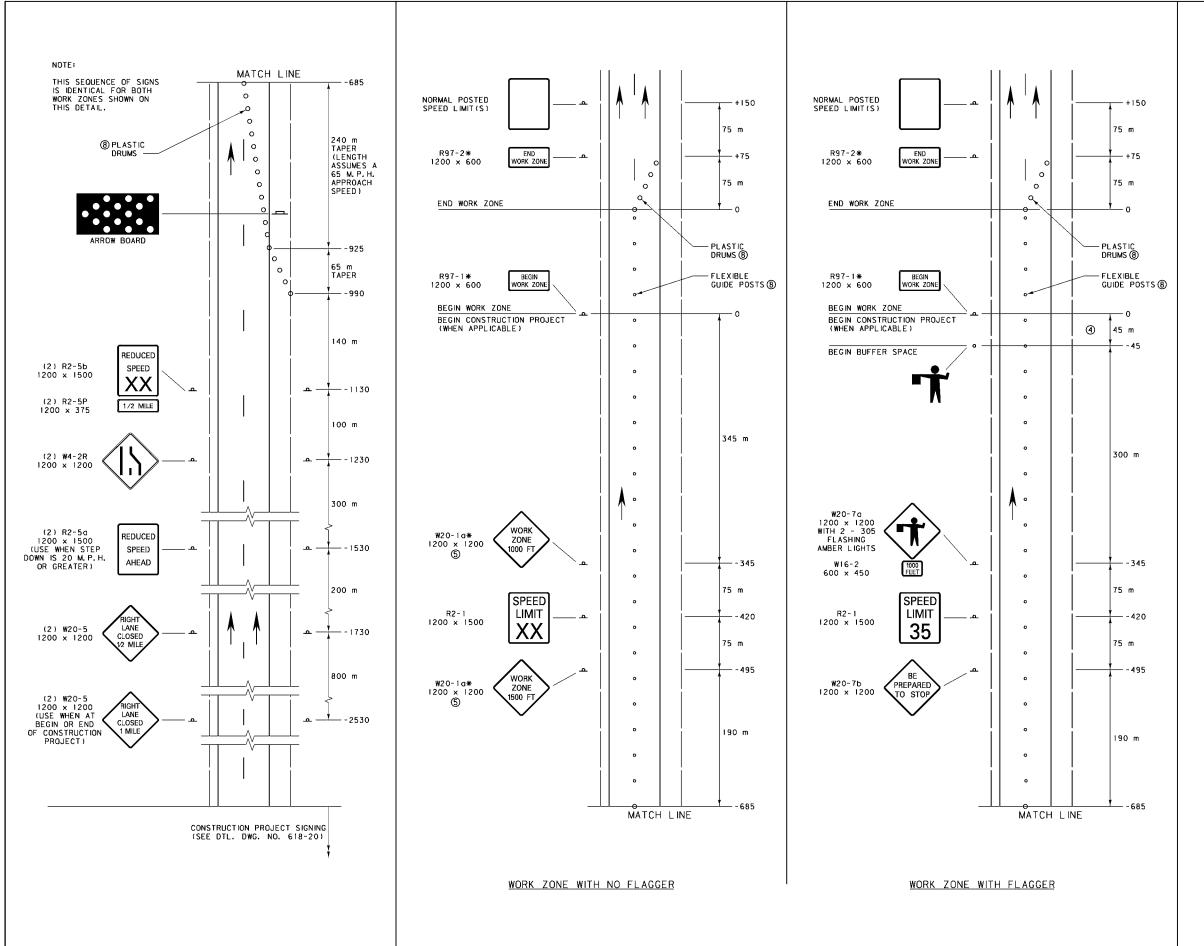


This Frame left blank







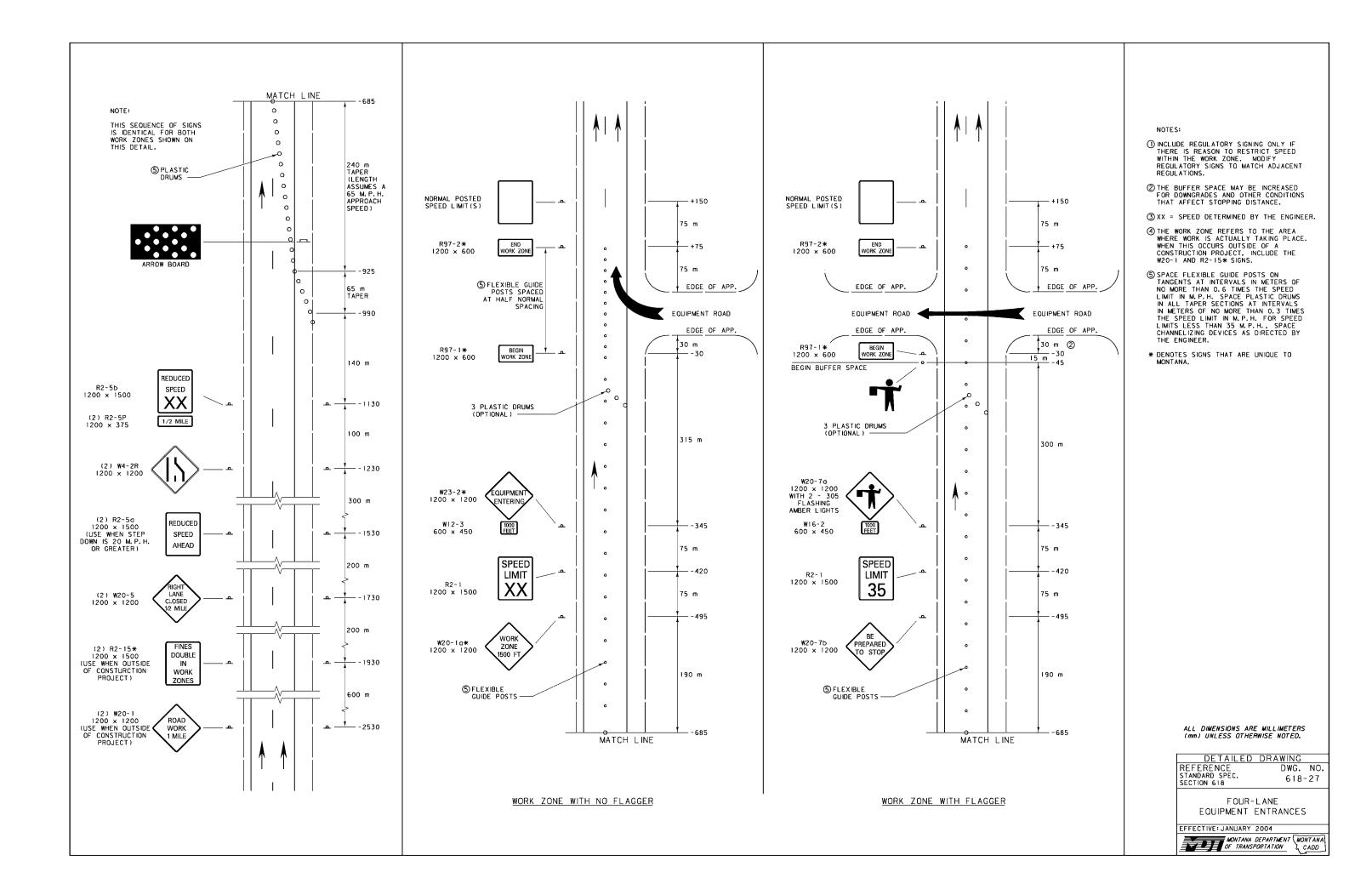


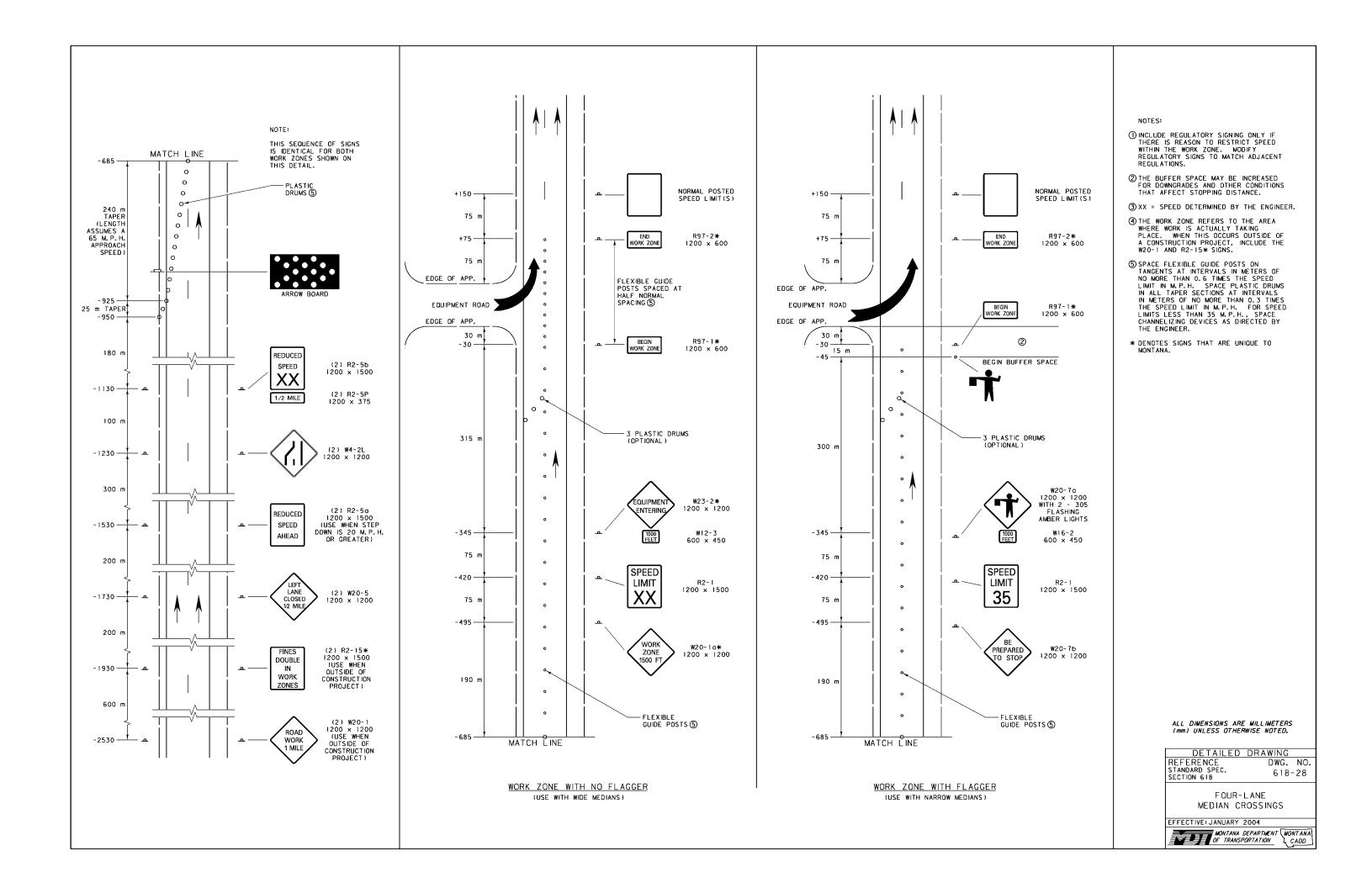
- ① THESE SIGN LAYOUTS WORK IN CONJUNCTION WITH THE PERMANENT LAYOUT ILLUSTRATED ON DTL. DWG. NO. 618-20 FOR WORK ZONES LOCATED AT THE BEGIN AND END OF THE CONSTRUCTION PROJECT
- ② INCLUDE REGULATORY SIGNING ONLY IF THERE IS REASON TO RESTRICT SPEED WITHIN THE WORK ZONE. MODIFY REGULATORY SIGNS TO MATCH ADJACENT REGULATIONS.
- ③ THE WORK ZONE REFERS TO THE AREA WITHIN THE CONSTRUCTION PROJECT WHERE WORK IS ACTUALLY TAKING PLACE.
- (4) THE BUFFER SPACE MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE.
- (5) USE MORE SPECIFIC SIGNS, WHERE APPLICABLE, SUCH AS W8-3 "PAVEMENT ENDS."
- 6 XX = SPEED DETERMINED BY THE ENGINEER.
- (†) PROVIDE A SECOND FLAGGER WHEN MORE THAN 10 VEHICLES ARE STOPPED AT THE FLAGGER STATION MORE THAN 50% OF THE TIME.
- (B) SPACE FLEXIBLE GUIDE POSTS ON TANGENTS AT INTERVALS IN METERS OF NO MORE THAN 0.6 TIMES THE SPEED LIMIT IN M.P.H. SPACE PLASTIC DRUMS IN ALL TAPER SECTIONS AT INTERVALS IN METERS OF NO MORE THAN 0.3 TIMES THE SPEED LIMIT IN M.P.H. FOR SPEED LIMITS LESS THAN 35 M.P.H., SPACE CHANNELIZING DEVICES AS DIRECTED BY THE ENGINEER.
- WHEN PORTABLE SIGNS ARE USED, PLACE AS DIRECTED BY THE ENGINEER.
- $\boldsymbol{*}$ DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

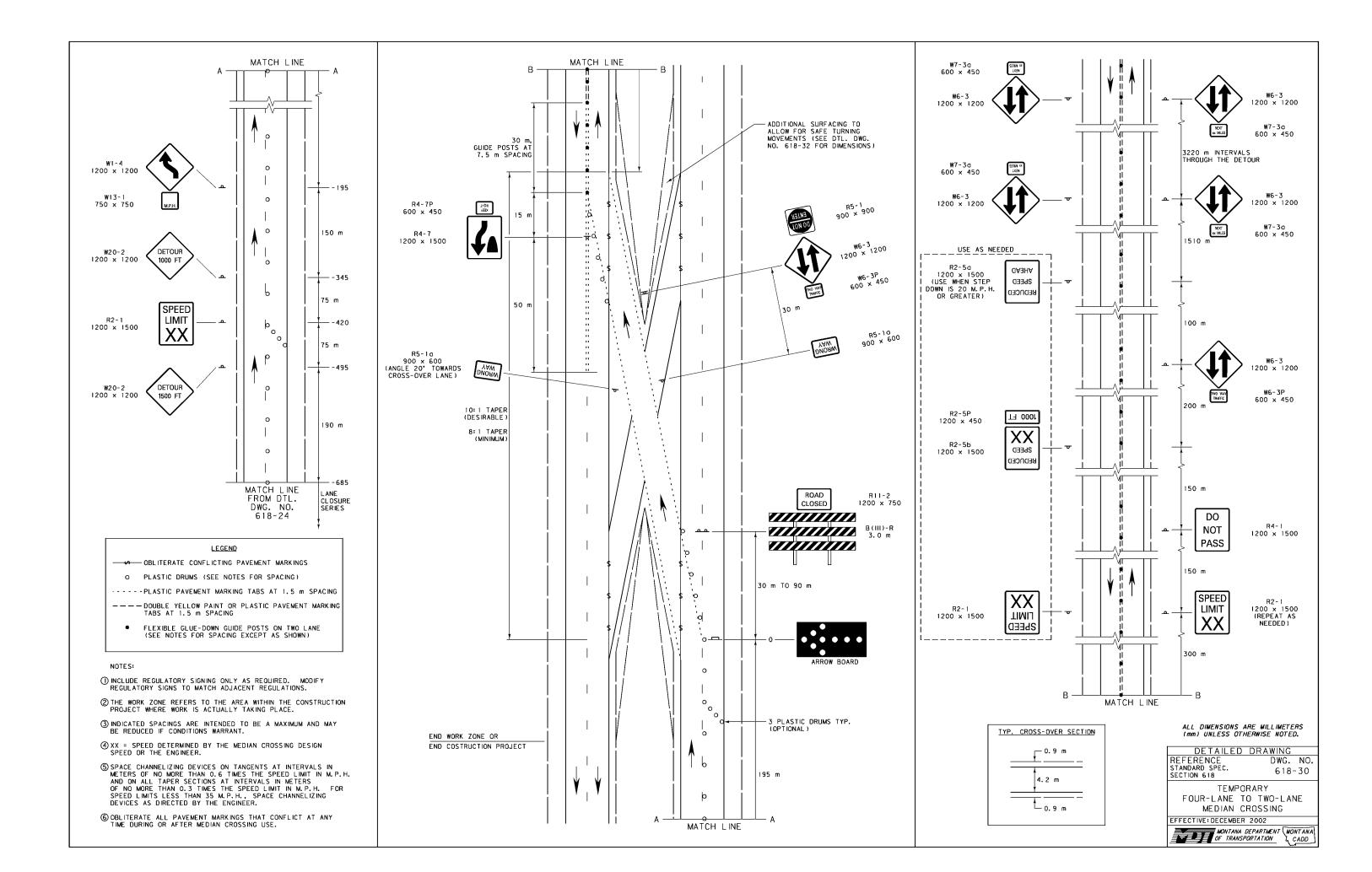
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

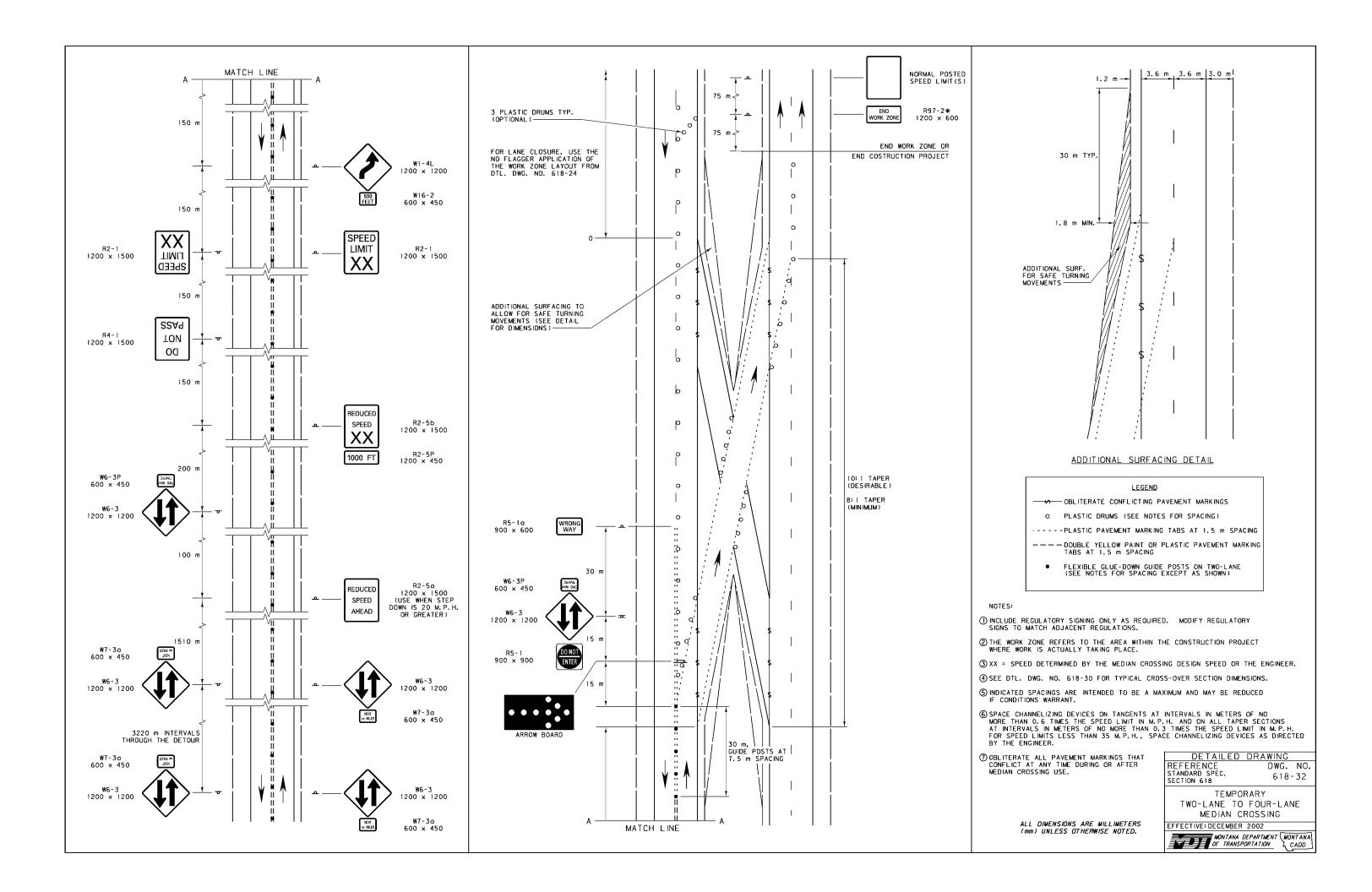
FOUR-LANE
CONSTRUCTION PROJECT
WORK ZONES

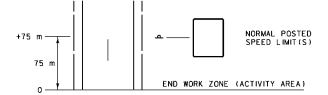


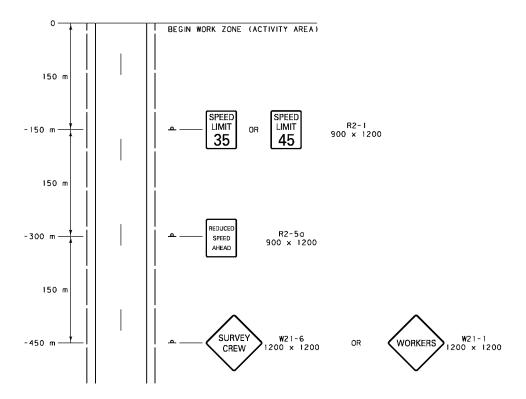










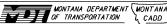


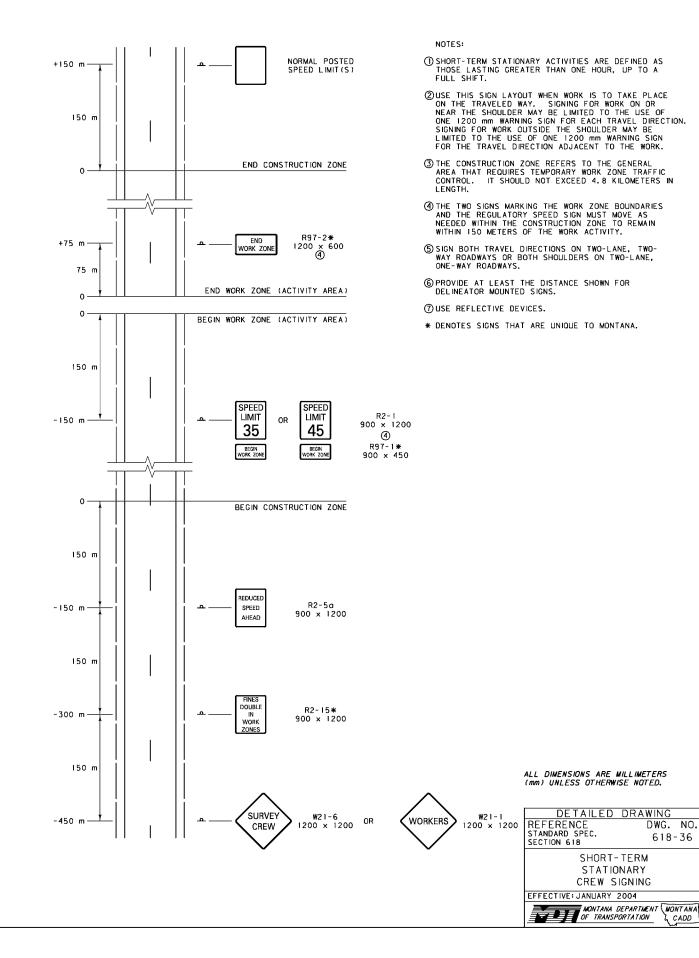
- ① SHORT DURATION ACTIVITIES ARE DEFINED AS THOSE LASTING UP TO ONE HOUR.
- ② USE THIS SIGN LAYOUT WHEN WORK IS TO TAKE PLACE ON THE TRAVELED WAY. SIGNING FOR WORK ON OR NEAR THE SHOULDER MAY BE LIMITED TO THE USE OF ONE 1200 mm WARNING SIGN FOR EACH TRAVEL DIRECTION. SIGNING FOR WORK OUTSIDE THE SHOULDER MAY BE LIMITED TO THE USE OF ONE 1200 mm WARNING SIGN FOR THE TRAVEL DIRECTION ADJACENT TO THE WORK.
- ③ SIGN BOTH TRAVEL DIRECTIONS ON TWO-LANE, TWO-WAY ROADWAYS OR BOTH SHOULDERS ON TWO-LANE, ONE-WAY ROADWAYS.
- PROVIDE AT LEAST THE DISTANCE SHOWN FOR DELINEATOR MOUNTED SIGNS.
- (5) SEE DTL. DWG. NO. 618-36 "SHORT-TERM STATIONARY CREW SIGNING" IF THE DOUBLE PENALTY REGULATION IS TO BE UTILIZED.

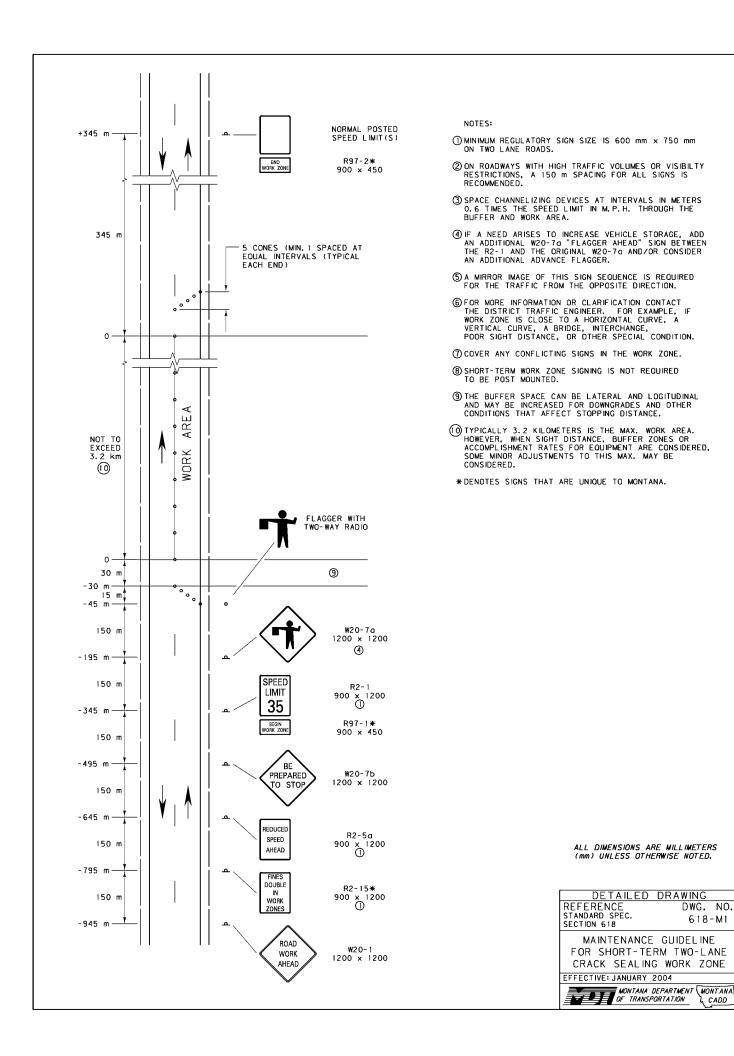
ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

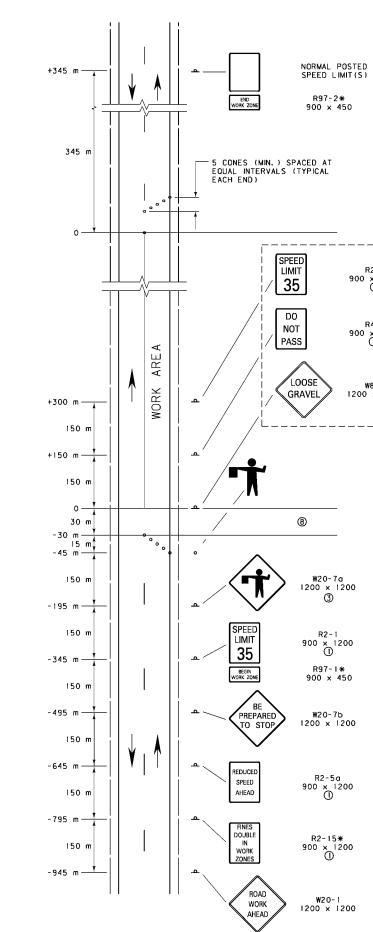
DETAILED DRAWING
REFERENCE DWG. NO.
STANDARD SPEC. 618-34
SHORT DURATION

CREW SIGNING









R2-1 900 x 1200 NOTE: TO BE POSTED AT THE START OF THE 900 x 1200 WORK AND REPEATED AT 3,2 km INTERVALS UNTIL THE SURFACE IS SWEPT AND STRIPED. 1200 x 1200 NOTES: MINIMUM REGULATORY SIGN SIZE IS 600 mm x 750 mm ON TWO LANE ROADS. ② ON ROADWAYS WITH HIGH TRAFFIC VOLUMES OR VISIBILITY RESTRICTIONS, A 150 m SPACING FOR ALL SIGNS IS RECOMMENDED. (3) IF A NEED ARISES TO INCREASE VEHICLE STORAGE, ADD AN ADDITIONAL W20-70 "FLAGGER AHEAD" SIGN BETWEEN THE R2-1 AND THE ORIGINAL W20-70 AND/OR CONSIDER AN ADDITIONAL ADVANCE FLAGGER. (4) A MIRROR IMAGE OF THIS SIGN SEQUENCE IS REQUIRED FOR THE TRAFFIC FROM THE OPPOSITE DIRECTION. (S) FOR MORE INFORMATION OR CLARIFICATION CONTACT THE DISTRICT TRAFFIC ENGINEER. FOR EXAMPLE, IF WORK ZONE IS CLOSE TO A HORIZONTAL CURVE, A VERTICAL CURVE, A BRIDGE, INTERCHANGE, POOR SIGHT DISTANCE OR OTHER SPECIAL CONDITION. 6 COVER ANY CONFLICTING SIGNS IN THE WORK ZONE. TSHORT-TERM WORK ZONE SIGNING IS NOT REQUIRED TO BE POST MOUNTED. (8) THE BUFFER SPACE CAN BE LATERAL AND LONGITUDINAL AND MAY BE INCREASED FOR DOWNGRADES AND OTHER CONDITIONS THAT AFFECT STOPPING DISTANCE. * DENOTES SIGNS THAT ARE UNIQUE TO MONTANA. ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED. DETAILED DRAWING REFERENCE SECTION 618 MAINT. GUIDELINE FOR SHORT TERM TWO-LANE CHIP SEAL OVERLAY (PILOTED TRAFFIC

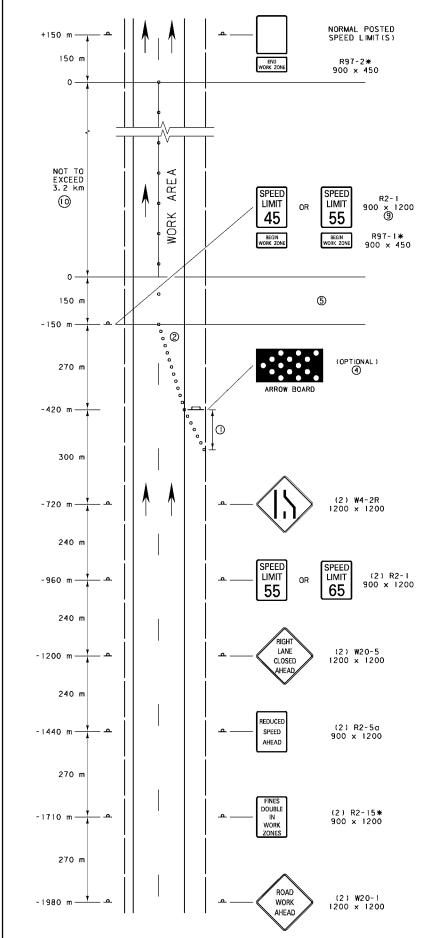
DWG. NO.

618-M2

EFFECTIVE: JANUARY 2004

MONTANA DEPARTMENT MONTANA
OF TRANSPORTATION L CADD

This Frame left blank



- ① USE A MINIMUM 65 m SHOULDER TAPER.
- ② USE THIRTEEN APPROVED CHANNELIZING DEVICES FOR A 3.6 m LANE CLOSURE TAPER (75 M.P.H. SPACED AT 22.5 m.) ASSURE THAT THE TAPER IS A MINIMUM LENGTH OF 270 m.
- ③ SPACE CHANNELIZING DEVICES AT INTERVALS IN METERS OF 0.6 TIMES THE SPEED LIMIT IN M.P.H. THROUGH THE BUFFER AND WORK AREA.
- PLACE THE ARROW BOARD (IF USED) ON THE SHOULDER AT THE START OF THE TRAVEL LANE CLOSURE TAPER.
- (5) THE BUFFER SPACE CAN BE LATERAL AND LONGITUDINAL. KEEP THE BUFFER SPACE CLEAR OF EQUIPMENT AND PERSONNEL.
- ⑥ FOR MORE INFORMATION OR CLARIFICATION CONTACT THE DISTRICT TRAFFIC ENGINEER, FOR EXAMPLE, IF WORK AREA IS CLOSE TO A HORIZONTAL CURVE, A VERTICAL CURVE, A BRIDGE, INTERCHANGE, POOR SIGHT DISTANCE OR OTHER SPECIAL CONDITION.
- OCOVER ANY CONFLICTING SIGNS IN THE WORK AREA.
- SHORT-TERM WORK ZONE SIGNING IS NOT REQUIRED TO BE POST MOUNTED.
- (9) WHEN THE WORK ZONE CHANGES WITHIN THE CONSTRUCTION ZONE THESE SIGNS SHOULD BE MOVED TO REFLECT THE ACTUAL WORK ZONE.
- (1) TYPICALLY 3.2 KILOMETERS IS THE MAX. WORK AREA. HOWEVER, WHEN SIGHT DISTANCE, BUFFER ZONES OR ACCOMPLISHMENT RATES FOR EQUIPMENT ARE CONSIDERED, SOME MINOR ADJUSTMENTS TO THIS MAX. MAY BE
- *DENOTES SIGNS THAT ARE UNIQUE TO MONTANA.

ALL DIMENSIONS ARE MILLIMETERS (mm) UNLESS OTHERWISE NOTED.

DETAILED DRAWING REFERENCE STANDARD SPEC. SECTION 618

DWG. NO. 618-M3

MAINTENANCE GUIDELINE FOR SHORT-TERM LANE CLOSURE ON INTERSTATE

